

Tesla Inc.

Company valuation



	Data Source	Where to find it
1	Historical production data	https://cleantechnica.com/2017/01/03/teslas-2016-deliveries-production/ http://ir.tesla.com/releasedetail.cfm?releaseid=1053245
2	Download Solar City financials prior the merger	https://www.sec.gov/Archives/edgar/data/1408356/000156459016012549/scty-10k_20151231.htm https://www.sec.gov/Archives/edgar/data/1408356/000156459017003084/scty-10k_20161231.htm
3	Tesla annual reports	http://www.annualreports.com/HostedData/AnnualReportArchive/t/NASDAQ_TSLA_2016.pdf http://www.annualreports.com/HostedData/AnnualReportArchive/t/NASDAQ_TSLA_2015.pdf http://www.annualreports.com/HostedData/AnnualReports/PDF/NASDAQ_TSLA_2017.pdf
4	Yahoo finance – Tesla’s company profile (beta)	https://finance.yahoo.com/quote/TSLA/
5	Yield to maturity data – Cost of debt	https://www.bondsupermart.com/main/bond-info/bond-factsheet/USU8810LAA18
6	Current Tesla prices	https://www.truecar.com/prices-new/tesla/
7	Q3 2017 Earnings call transcript	https://seekingalpha.com/article/4119419-tesla-tsla-q3-2017-results-earnings-call-transcript https://seekingalpha.com/article/4144365-tesla-tsla-q4-2017-results-earnings-call-transcript https://seekingalpha.com/article/4169027-tesla-tsla-q1-2018-results-earnings-call-transcript

Input



Tesla valuation – Drivers

C3													
	A	B	C	D	E	F	G	H	I	J	K	L	
1	Drivers												
2													
3		Selected case	1										
4		Corporate tax rate	30%										
5		Expected inflation	1%										
6													
7													
8													
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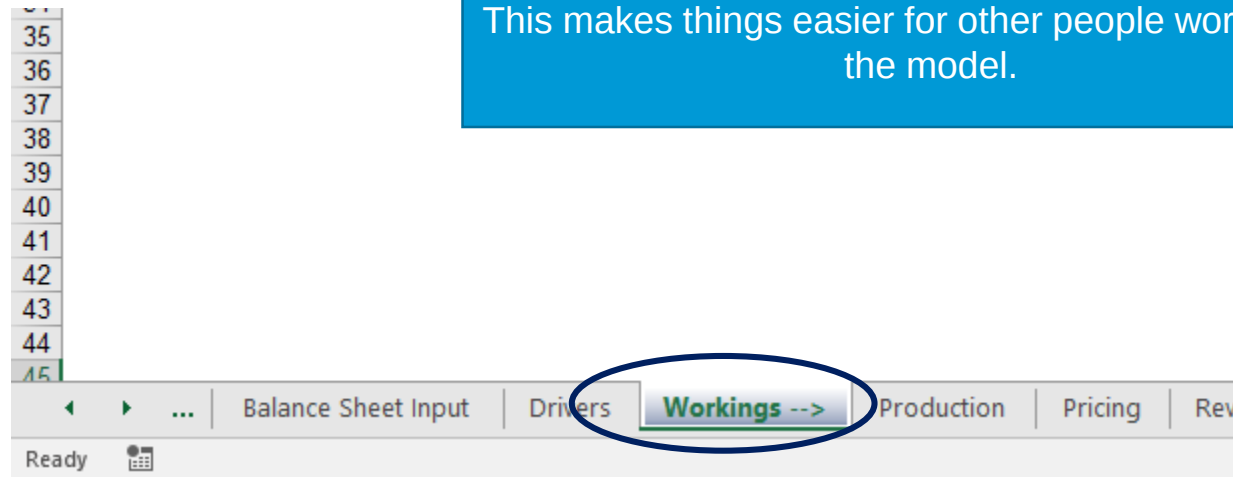
A “Drivers” sheet helps us organize some inputs we will need when working on the valuation model. Typically, the inputs we will have here are external inputs (such as macroeconomic data) that are not dependent on the company we are valuing.

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Workings

The “Workings” sheet serves as a section divider in our model. It helps us distinguish the “Inputs” section and the calculation sheets we will need afterwards. This makes things easier for other people working with the model.



Tesla valuation – Production sheet

The screenshot displays a spreadsheet with the following data:

	2014	2015	2016	2017Q3	2018
(in thousands)	Act	Act	Act	Act.	Exp.
Model S and Model X	31.7	50.6	83.9	101.3	150.8
Model 3				1.8	227.5
Other vehicles				-	-
Total	31.7	50.6	83.9	103.1	378.3

Selected case:

	2015	2016	2017Q3	2018
Model S and Model X y-o-y %	60%	66%	21%	49%
Model 3 y-o-y %				
Other vehicles y-o-y %				

Best case

	2015	2016	2017Q3	2018
Model S and Model X y-o-y %	82%	41%	24%	24%
Model 3 y-o-y %	82%	163%	82%	82%
Other vehicles y-o-y %	41%	31%	20%	16%

Base case

	2015	2016	2017Q3	2018
Model S and Model X y-o-y %	26%	18%	14%	10%
Model 3 y-o-y %	80%	40%	24%	24%
Other vehicles y-o-y %	80%	160%	80%	80%

Worst case

	2015	2016	2017Q3	2018
Model S and Model X y-o-y %	25%	18%	14%	10%
Model 3 y-o-y %	78%	39%	24%	24%
Other vehicles y-o-y %	78%	157%	78%	78%

Analysis Points:

- Model S and Model X – established models with strong performance
- Model 3 – the first mass market electric vehicle
- Other vehicles to be released in future (Tesla Semi, Model Y)

Tesla valuation – Production sheet

F4		=101312/1000														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Production															
2																
3		(in thousands)	2014 Act	2015 Act	2016 Act	2017Q3 Act	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.
4		Model S and Model X	31.7	50.6	83.9	101.3	150.8	190.0	224.2	255.5	281.1	309.2	340.1	367.3	396.7	420.5
5		Model 3				1.8	227.5	409.5	573.3	710.9	881.5	1,057.8	1,269.4	1,472.5	1,708.1	1,878.9
6		Other vehicles				-	-	35.0	81.0	163.0	284.0	419.0	536.0	643.0	747.0	831.7
7		Total	31.7	50.6	83.9	103.1	378.3	634.5								
8																
9		Selected case:														
10		Model S and Model X y-o-y %		60%	66%	21%	49%	26%								
11		Model 3 y-o-y %						80%								
12		Other vehicles y-o-y %						80%								
13																
14		Best case														
15		Model S and Model X y-o-y %						27%								
16		Model 3 y-o-y %						82%								
17		Other vehicles y-o-y %						82%								
18																
19		Base case														
20		Model S and Model X y-o-y %						26%	18%	14%	10%	10%	10%	8%	8%	6%
21		Model 3 y-o-y %						80%	40%	24%	24%	20%	20%	16%	16%	10%
22		Other vehicles y-o-y %						80%	160%	80%	80%	40%	30%	20%	16%	10%
23																
24		Worst case														
25		Model S and Model X y-o-y %						25%	18%	14%	10%	10%	10%	8%	8%	6%
26		Model 3 y-o-y %						78%	39%	24%	24%	20%	20%	16%	16%	10%
27		Other vehicles y-o-y %						78%	157%	78%	78%	39%	29%	20%	16%	10%
28																
29																
30																

Then, we used this data to project year-on-year growth rates. For Model 3 and Other vehicles, we assumed a strong initial growth and a gradual normalization throughout the forecast period.

Then, we used this data to project year-on-year growth rates. For Model 3 and Other vehicles, we assumed a strong initial growth and a gradual normalization throughout the forecast period.

Tesla valuation – Production sheet

Formula bar: `=CHOOSE(Drivers!$C$3,Production!H15,Production!H20,Production!H25)`

Production		2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.
3	(in the)	150.8	190.0	224.2	255.5	281.1	309.2	340.1	367.3	396.7	420.5
4	Model S	227.5	409.5	573.3	710.9	881.5	1,057.8	1,269.4	1,472.5	1,708.1	1,878.9
5	Model X	-	35.0	91.0	163.8	294.8	412.8	536.6	643.9	747.0	821.7
6	Other vehicles	-	-	-	-	-	-	-	-	-	-
7	Total	378.3	634.5	888.5	1,130.2	1,457.4	1,779.8	2,146.1	2,483.7	2,851.7	3,121.0
9	Selection	49%	26%	18%	14%	10%	10%	10%	8%	8%	6%
10	Model S and Model X y-o-y %	80%	80%	40%	24%	24%	20%	20%	16%	16%	10%
11	Model 3 y-o-y %	80%	80%	160%	80%	80%	40%	30%	20%	16%	10%
12	Other vehicles y-o-y %	-	-	-	-	-	-	-	-	-	-
13	Best case	-	-	-	-	-	-	-	-	-	-
14	Model S and Model X y-o-y %	-	27%	18%	14%	10%	10%	10%	8%	8%	6%
15	Model 3 y-o-y %	-	82%	41%	24%	24%	20%	20%	16%	16%	10%
16	Other vehicles y-o-y %	-	82%	163%	82%	82%	41%	31%	20%	16%	10%
17	Base case	-	-	-	-	-	-	-	-	-	-
18	Model S and Model X y-o-y %	-	26%	18%	14%	10%	10%	10%	8%	8%	6%
19	Model 3 y-o-y %	-	80%	40%	24%	24%	20%	20%	16%	16%	10%
20	Other vehicles y-o-y %	-	80%	160%	80%	80%	40%	30%	20%	16%	10%
21	Worst case	-	-	-	-	-	-	-	-	-	-
22	Model S and Model X y-o-y %	-	25%	18%	14%	10%	10%	10%	8%	8%	6%
23	Model 3 y-o-y %	-	78%	39%	24%	24%	20%	20%	16%	16%	10%
24	Other vehicles y-o-y %	-	78%	157%	78%	78%	39%	29%	20%	16%	10%

Using the Choose function to create different scenarios:

- (1) Best case
- (2) Base case
- (3) Worst case

Tesla valuation – Pricing sheet

G4		=78000/1000														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Pricing															
2																
3	(in thousands)	2014 Act	2015 Act	2016 Act	2017Q3 Act	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.	
4	Average price - Model S and Model X					78.0	78.8	79.6	80.4	81.2	82.0	82.8	83.6	84.5	85.3	
5	Average price - Model 3					38.0	38.4	38.8	39.2	39.5	39.9	40.3	40.7	41.1	41.6	
6	Average price - Other vehicles					65.0	65.7	66.3	67.0	67.6	68.3	69.0	69.7	70.4	71.1	
7	Total					181.0	182.8	184.6	186.5	188.3	190.2	192.1	194.1	196.0	198.0	
8																
9	Selected case:															
10	Average price - Model S and Model X y-o-y %					0.0%										
11	Average price - Model 3 y-o-y %					0.0%										
12	Average price - Other vehicles y-o-y %					0.0%										
13																
14																
15	Best case															
16	Average price - Model S and Model X y-o-y %					0.0%										
17	Average price - Model 3 y-o-y %					0.0%										
18	Average price - Other vehicles y-o-y %					0.0%										
19																
20	Base case															
21	Average price - Model S and Model X y-o-y %					0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
22	Average price - Model 3 y-o-y %					0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
23	Average price - Other vehicles y-o-y %					0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
24																
25	Worst case															
26	Average price - Model S and Model X y-o-y %					0.0%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	
27	Average price - Model 3 y-o-y %					0.0%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	
28	Average price - Other vehicles y-o-y %					0.0%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	
29																
30																

\$78,000 – the average price of Model S and Model X

\$38,000 – Model 3 price (\$35,000 starting price + \$3,000 e

\$65,000 – an assumption regarding the average price of the vehicles Tesla will introduce in the forecast period

\$78,000 – the average price of Model S and Model X
 \$38,000 – Model 3 price (\$35,000 starting price + \$3,000 extras)
 \$65,000 – an assumption regarding the average price of the other vehicles Tesla will introduce in the forecast period

Tesla valuation – Pricing sheet

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1		Pricing														
2																
3		(in thousands)	2014 Act	2015 Act	2016 Act	2017Q3 Act.	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.
4		Average price - Model S and Model X					78.0	78.8	79.6	80.4	81.2	82.0	82.8	83.6	84.5	85.3
5		Average price - Model 3					38.0	38.4	38.8	39.2	39.5	39.9	40.3	40.7	41.1	41.6
6		Average price - Other vehicles					65.0	65.7	66.3	67.0	67.6	68.3	69.0	69.7	70.4	71.1
7		Total					181.0	182.8	184.6	186.5	188.3	190.2	192.1	194.1	196.0	198.0
8																
9		Selected case:														
10		Average price - Model S and Model X y-o-y %					0.0%	1.0%							1.0%	1.0%
11		Average price - Model 3 y-o-y %					0.0%	1.0%							1.0%	1.0%
12		Average price - Other vehicles y-o-y %					0.0%	1.0%							1.0%	1.0%
13																
14																
15		Best case														
16		Average price - Model S and Model X y-o-y %					0.0%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
17		Average price - Model 3 y-o-y %					0.0%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
18		Average price - Other vehicles y-o-y %					0.0%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
19																
20		Base case														
21		Average price - Model S and Model X y-o-y %					0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
22		Average price - Model 3 y-o-y %					0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
23		Average price - Other vehicles y-o-y %					0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
24																
25		Worst case														
26		Average price - Model S and Model X y-o-y %					0.0%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
27		Average price - Model 3 y-o-y %					0.0%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
28		Average price - Other vehicles y-o-y %					0.0%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
29																

Assuming prices will increase in line with expected inflation

Tesla valuation – Revenues sheet

G4

Calculate revenues per each group:
Production * Pricing

Tesla valuation – Revenues sheet

NORM.DIST		X		✓		fx		=E16/D16-1									
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Revenues																
2																	
3			2014	2015	2016	2017Q3	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
4	(in million)		Act	Act	Act	Act	Exp.	Exp.	Exp.	Exp.	Exp.	Exp.	Exp.	Exp.	Exp.	Exp.	
5	Revenues - Model S and Model X		3,007.0	3,741.0	6,350.8	6,939.1	11,759.3	14,964.9	17,835.2	20,535.4	22,814.9	25,347.3	28,160.9	30,717.9	33,507.0	35,872.6	
6	Revenues - Model 3						8,645.0	15,716.6	22,223.3	27,832.4	34,857.4	42,247.1	51,203.5	59,990.0	70,284.3	78,085.9	
7	Revenues - Other vehicles						0.0	2,297.8	6,033.9	10,969.6	19,942.8	28,199.1	37,025.4	44,874.7	52,575.3	58,411.1	
8	Automotive revenues		3,007.0	3,741.0	6,350.8	6,939.1	20,404.3	32,975.3	46,832.5	52,504.6	57,907.1	63,359.2	68,813.8	74,372.1	79,934.3	85,500.6	
9	Energy generation and storage		4.2	14.5	181.4	818.2	349.0										
10	Services and other		187.1	290.6	468.0	713.2	740.2										
11	Total revenues		3,198.4	4,046.0	7,000.1	8,470.5	21,493.5	34,024.5	47,866.4	54,336.6	59,856.9	65,376.1	70,895.3	76,414.5	81,933.7	87,452.9	
12	Solar City historical revenue:																
13	(in million)		2014	2015	2016												
14	Revenue		Act	Act	Act												
15	Revenue registered as Tesla		255.0	399.6	730.3												
16	Total revenue Solar City		255.0	399.6	911.7												
17																	
18	Selected case:																
19	Energy generation y-o-y %			57%	=E16/D16-1												
20	Services and other y-o-y %			55%	61%												
21																	
22	Best case																
23	Energy generation y-o-y %					94%	61%	41%	20%	10%	10%	5%	5%	5%	5%	5%	5%
24	Services and other y-o-y %					59%	31%	31%	20%	20%	10%	10%	10%	5%	5%	5%	5%
25																	
26	Base case																
27	Energy generation y-o-y %					92%	60%	40%	20%	10%	10%	5%	5%	5%	5%	5%	5%
28	Services and other y-o-y %					58%	30%	30%	20%	20%	10%	10%	10%	5%	5%	5%	5%
29																	
30	Worst case																
31	Energy generation y-o-y %					91%	59%	39%	20%	10%	10%	5%	5%	5%	5%	5%	5%
32	Services and other y-o-y %					57%	29%	29%	20%	20%	10%	10%	10%	5%	5%	5%	5%
33																	

Add Solar City revenues to the Energy generation and Storage figures and calculate historical revenue growth of the combined units to account for the Solar City merger. Then use these figures to project year on year growth rate.

Tesla valuation – Margins automotive

F10																
26.4190570583819%																
A B C D E F G H I J K L M N O P																
Margins Automotive																

Consider historical margins for Model S and Model X. Then, work with hypothetical margins for the low-cost Model 3 (some believe it would have negative profitability) and future models that will be introduced by the company.

Tesla valuation – Margins automotive

NORM.DIST		✕ ✓ f_x		=G10*Revenues!G4												
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Margins Automotive															
2																
3		(in million)	2014 Act	2015 Act	2016 Act	2017 Q3 Act	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.
4		Gross profit - Model S and Model X	861.3	917.7	1,600.7	1,697.6	3,920.6	4,993.8	6,160.6	7,300.8	8,618.1	9,574.7	10,444.1	11,392.4	12,196.7	
5		Gross profit - Model 3					1,886.0	2,322.5	5,000.8	7,668.6	10,120.2	12,288.8	14,207.6	16,968.2	18,740.6	
6		Gross profit - Other vehicles					-	643.4						72.6	17,523.3	
7		Automotive Gross profit	861.3	917.7	1,600.7	1,697.6	3,945.3	6,450.0						33.2	48,460.6	
8																
9		Selected case:														
10		Average margin - Model S and Model X y-o-y %	29%	25%	25%	26%	26%	26%	28%	30%	32%	34%	34%	34%	34%	34%
11		Average margin - Model 3 y-o-y %					10%	12%	15%	18%	22%	24%	24%	24%	24%	24%
12		Average margin - Other vehicles y-o-y %					26%	28%	30%	30%	30%	30%	30%	30%	30%	30%
13																
14		Inflation					1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
15																
16		Best case														
17		Average margin - Model S and Model X y-o-y %					27%	27%	29%	31%	33%	35%	35%	35%	35%	35%
18		Average margin - Model 3 y-o-y %					11%	13%	16%	19%	23%	25%	25%	25%	25%	25%
19		Average margin - Other vehicles y-o-y %					27%	29%	31%	31%	31%	31%	31%	31%	31%	31%
20																
21		Base case														
22		Average margin - Model S and Model X y-o-y %					26%	26%	28%	30%	32%	34%	34%	34%	34%	34%
23		Average margin - Model 3 y-o-y %					10%	12%	15%	18%	22%	24%	24%	24%	24%	24%
24		Average margin - Other vehicles y-o-y %					26%	28%	30%	30%	30%	30%	30%	30%	30%	30%
25																
26		Worst case														
27		Average margin - Model S and Model X y-o-y %					25%	25%	27%	29%	31%	33%	33%	33%	33%	33%
28		Average margin - Model 3 y-o-y %					9%	11%	14%	17%	21%	23%	23%	23%	23%	23%
29		Average margin - Other vehicles y-o-y %					25%	27%	29%	29%	29%	29%	29%	29%	29%	29%
30																

Margin (Model S and Model X) * Revenue
= Gross Profit

Tesla valuation – Margins other

NORM.DIST : X ✓ f_x =(C4+C10)/(Revenues!C8+Revenues!C14)																
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
1	Margins Other															
2																
3	(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act.		2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.
4	Energy generation and storage	0.2	2.2	3.1			101.8	162.9	228.1	273.8	301.1	331.2	347.8	365.2	383.5	402.6
5	Services and other	20.2	3.6	(4.5)			27.4	35.6	46.2	55.5	66.6	73.3	80.6	88.6	93.1	97.7
6	Gross profit other	20.4	5.8	(1.4)			129.2	198.5	274.3	329.3	367.7	404.5	428.4	453.8	476.5	500.3
7																
8	Solar City historical Gross profit:															
9	(in million)	2014 Act	2015 Act	2016 Act												
10	Gross Profit	78.6	118.8	251.4												
11	Revenue registered as Tesla			3.1												
12	Gross profit Solar City	78.6	118.8	254.5												
13																
14	Selected case:															
15	Energy generation GP%	=Revenues!C14	29.2%	27.9%		29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%
16	Services and other GP%	10.8%	1.3%	-1.0%		4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
17																
18	Best case															
19	Energy generation GP%					30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
20	Services and other GP%					4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
21																
22	Base case															
23	Energy generation GP%					29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%
24	Services and other GP%					4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
25																
26	Worst case															
27	Energy generation GP%					29%	29%	29%	29%	29%	29%	29%	29%	29%	29%	29%
28	Services and other GP%					4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
29																

As we did with revenues, add Solar City's Gross profit data and use historical figures to predict the margins of the Energy generation and Storage division.

As we did with revenues, add Solar City's Gross profit data and use historical figures to predict the margins of the Energy generation and Storage division.

Tesla valuation – Cost of sales

G4

X

✓

fx

=(Revenues!G7-'Margins Auto'!G7)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1		Cost of sales														
2																
3		(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.
4		Automotive revenues	(2,145.7)	(2,823.3)	(4,750.1)	(5,241.5)	(16,459.0)	(26,529.3)	(35,954.8)	(44,876.1)	(56,662.8)	(68,576.4)	(83,418.6)	(97,278.5)	(112,333.4)	(123,909.0)
5		Energy generation and storage	(4.0)	(12.3)	(178.3)	(818.2)	(247.2)	(395.5)	(553.7)	(664.5)	(730.9)	(804.0)	(844.2)	(886.4)	(930.7)	(977.3)
6		Services and other	(166.9)	(286.9)	(472.5)	(713.2)	(712.8)	(926.6)	(1,204.6)	(1,445.5)	(1,734.7)	(1,908.1)	(2,098.9)	(2,308.8)	(2,424.3)	(2,545.5)
7		Cost of sales	(2,316.7)	(3,122.5)	(5,400.9)	(6,772.9)	(17,419.0)	(27,851.4)	(37,713.2)	(46,986.1)	(59,128.3)	(71,288.5)	(86,361.7)	(100,473.8)	(115,688.4)	(127,431.7)
8																
9																
10																
11																
12																

Calculate Cost of sales of the three main categories:

Calculate Cost of sales of the three main categories:
 $\text{Cost of Sales} = - (\text{Revenues} - \text{Margins})$

Tesla valuation – Opex

F7    =F5/F6

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Opex															
2																
3																
4	(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.	
5	Opex	(1,068.4)	(1,640.1)	(2,266.6)	(2,817.6)	(6,448.1)	(10,350.0)	(13,475.0)	(16,062.0)	(19,307.6)	(21,760.2)	(23,952.2)	(27,846.3)	(32,039.6)	(35,278.5)	
6	Revenue	3,198.4	4,046.0	7,000.1	8,470.5	21,493.5	34,499.9	48,125.1	61,776.7	80,448.3	98,910.1	119,761.2	139,231.7	160,198.1	176,392.7	
7	Opex as a % of revenues	-33.4%	-40.5%	-32.4%	-33.3%	-30%	-30%	-28%	-26%	-24%	-22%	-20%	-20%	-20%	-20%	
8																
9																
10																
11	Selected case:															
12	Opex as a % of revenues					-30%	-30%	-28%	-26%	-24%	-22%	-20%	-20%	-20%	-20%	
13																
14	Best case															
15	Opex as a % of revenues					-29%	-29%	-27%	-25%	-24%	-22%	-20%	-20%	-20%	-20%	
16																
17	Base case															
18	Opex as a % of revenues					-30%	-30%	-28%	-26%	-24%	-22%	-20%	-20%	-20%	-20%	
19																
20	Worst case															
21	Opex as a % of revenues					-30%	-31%	-29%	-27%	-24%	-22%	-20%	-20%	-20%	-20%	
22																
23																
24																

We assume Tesla will improve its Opex efficiency once the “production hell of 2017” gets resolved and they can focus on Opex efficiencies. There is no reason their Opex spending shouldn’t be in line with the percentage larger auto producers spend.

365 Careers

	31Dec2014Act	31Dec2015Act	31Dec2016Act	30Sep2017Act	31Dec2018Act	31Dec2019Act	31Dec2020Act	31Dec2021Act	31Dec2022Act	31Dec2023Act	31Dec2024Act	31Dec2025Act	31Dec2026Act	31Dec2027Act
(in million)														
Beginning PP&E	738.5	1,829.3	3,403.3	5,983.0	9,394.4	19,704.7	32,768.9	48,091.8	64,716.2	82,858.8	100,877.8	117,838.3	131,981.6	147,855.3
Capex	1,322.7	1,996.7	3,526.7	4,577.8	11,717.8	15,305.4	19,032.9	21,786.9	24,969.7	26,621.0	27,388.2	26,326.1	30,060.6	32,879.0
D&A	(231.9)	(422.6)	(947.1)	(1,166.4)	(1,407.5)	(2,441.2)	(3,710.0)	(5,162.5)	(6,827.1)	(8,601.9)	(10,427.7)	(12,182.8)	(14,186.9)	(16,378.8)
Ending PP&E	1,829.3	3,403.3	5,983.0	9,394.4	19,704.7	32,768.9	48,091.8	64,716.2	82,858.8	100,877.8	117,838.3	131,981.6	147,855.3	164,355.5
D&A as a % of PP&E	-31.4%	-23.1%	-27.8%	-19.5%										
D&A as a % of revenues	-7.3%	-10.4%	-13.5%	-13.8%										
Capex as a % of PP&E	179.1%	109.2%	103.6%	76.5%										
Capex as a % of revenues	41.4%	49.3%	50.4%	54.0%										
Useful life Capex	15													
Useful life historical assets	15													
(in million)														
D&A Year 1					(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)
D&A Year 2						(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)
D&A Year 3							(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)
D&A Year 4								(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)
D&A Year 5									(1,664.6)	(1,664.6)	(1,664.6)	(1,664.6)	(1,664.6)	(1,664.6)
D&A Year 6										(1,774.7)	(1,774.7)	(1,774.7)	(1,774.7)	(1,774.7)
D&A Year 7											(1,825.9)	(1,825.9)	(1,825.9)	(1,825.9)
D&A Year 8												(1,755.1)	(1,755.1)	(1,755.1)
D&A Year 9													(2,004.0)	(2,004.0)
D&A Year 10														(2,191.9)
Total D&A	(231.9)	(422.6)	(947.1)	(1,166.4)	(1,407.5)	(2,441.2)	(3,710.0)	(5,162.5)	(6,827.1)	(8,601.9)	(10,427.7)	(12,182.8)	(14,186.9)	(16,378.8)

Tesla valuation – Fixed asset roll forward

Calculate historical Capex as:
Ending PP&E – Beginning PP&E – D&A
(because we have the formula
Beginning PP&E + Capex – D&A = Ending PP&E)

Ending PP&E – Beginning PP&E – D&A (because we have the formula Beginning PP&E + Capex – D&A = Ending PP&E)														
Fixed asset roll forward														
	31Dec2014Act	31Dec2015Act	31Dec2016Act	30Sep2017Act	31Dec2018Act	31Dec2019Act	31Dec2020Act	31Dec2021Act	31Dec2022Act	31Dec2023Act	31Dec2024Act	31Dec2025Act	31Dec2026Act	31Dec2027Act
(in million)														
Beginning PP&E	738.5	1,829.3	3,403.3	5,983.0	9,394.4	19,704.7	32,768.9	48,091.8	64,716.2	82,858.8	100,877.8	117,838.3	131,981.6	147,855.3
Capex	1,322.7	1,996.7	3,526.7	4,577.8	11,717.8	15,505.4	19,032.9	21,786.9	24,969.7	26,621.0	27,388.2	26,326.1	30,060.6	32,879.0
D&A	(231.9)	(422.6)	(947.1)	(1,166.4)	(1,407.5)	(2,441.2)	(3,710.0)	(5,162.5)	(6,827.1)	(8,601.9)	(10,427.7)	(12,182.8)	(14,186.9)	(16,378.8)
Ending PP&E	1,829.3	3,403.3	5,983.0	9,394.4	19,704.7	32,768.9	48,091.8	64,716.2	82,858.8	100,877.8	117,838.3	131,981.6	147,855.3	164,355.5
D&A as a % of PP&E	-31.4%	-23.1%	-27.8%	-19.5%										
D&A as a % of revenues	-7.3%	-10.4%	-13.5%	-13.8%										
Capex as a % of PP&E	179.1%	109.2%	103.6%	76.5%										
Capex as a % of revenues	41.4%	49.3%	50.4%	54.0%										
Useful life Capex	15													
Useful life historical assets	15													
	31Dec2014Act	31Dec2015Act	31Dec2016Act	30Sep2017Act	31Dec2018Act	31Dec2019Act	31Dec2020Act	31Dec2021Act	31Dec2022Act	31Dec2023Act	31Dec2024Act	31Dec2025Act	31Dec2026Act	31Dec2027Act
(in million)														
D&A Year 1					(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)
D&A Year 2						(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)
D&A Year 3							(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)
D&A Year 4								(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)
D&A Year 5									(1,664.6)	(1,664.6)	(1,664.6)	(1,664.6)	(1,664.6)	(1,664.6)
D&A Year 6										(1,774.7)	(1,774.7)	(1,774.7)	(1,774.7)	(1,774.7)
D&A Year 7											(1,825.9)	(1,825.9)	(1,825.9)	(1,825.9)
D&A Year 8												(1,755.1)	(1,755.1)	(1,755.1)
D&A Year 9													(2,004.0)	(2,004.0)
D&A Year 10														(2,191.9)
Total D&A	(231.9)	(422.6)	(947.1)	(1,166.4)	(1,407.5)	(2,441.2)	(3,710.0)	(5,162.5)	(6,827.1)	(8,601.9)	(10,427.7)	(12,182.8)	(14,186.9)	(16,378.8)

Tesla valuation – Fixed asset roll forward

G7		=G33*Revenues!G10														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Fixed asset roll forward															
2																
3																
4																
5		31Dec2014Act	31Dec2015	31Dec2016	30Sep2017	31Dec2018	31Dec2019	31Dec2020	31Dec2021	31Dec2022	31Dec2023	31Dec2024	31Dec2025	31Dec2026	31Dec2027	
6	(in million)	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	
7	Beginning PP&E	738.5	1,829.3	3,403.3	5,983.0	9,394.4	19,704.7	32,768.9	48,091.8	64,716.2	82,858.8	100,877.8	117,838.3	131,981.6	147,855.3	
8	Capex	1,322.7	1,996.7	3,526.7	4,577.8	11,717.8	15,505.4	19,032.9	21,786.9	24,969.7	26,621.0	27,388.2	26,326.1	30,060.6	32,879.0	
9	D&A	(231.9)	(422.6)	(947.1)	(1,166.4)	(1,407.5)	(2,441.2)	(3,710.0)	(5,162.5)	(6,827.1)	(8,601.9)	(10,427.7)	(12,182.8)	(14,186.9)	(16,378.8)	
10	Ending PP&E	1,829.3	3,403.3	5,983.0	9,394.4	19,704.7	32,768.9	48,091.8	64,716.2	82,858.8	100,877.8	117,838.3	131,981.6	147,855.3	164,355.5	
11	D&A as a % of PP&E	-31.4%	-23.1%	-27.8%	-19.5%											
12	D&A as a % of revenues	-7.3%	-10.4%	-13.5%	-13.8%											
13	Capex as a % of PP&E	179.1%	109.2%	103.6%	76.5%											
14	Capex as a % of revenues	41.4%	49.3%	50.4%	54.0%											
15	Useful life Capex	15														
16	Useful life historical assets	15														
17																
18																
19	(in million)	31Dec2014Act	31Dec2015	31Dec2016	30Sep2017	31Dec2018	31Dec2019	31Dec2020	31Dec2021	31Dec2022	31Dec2023	31Dec2024	31Dec2025	31Dec2026	31Dec2027	
20		Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	
21	D&A Year 1					(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	
22	D&A Year 2						(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	
23	D&A Year 3							(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	
24	D&A Year 4								(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	
25	D&A Year 5									(1,664.6)	(1,664.6)	(1,664.6)	(1,664.6)	(1,664.6)	(1,664.6)	
26	D&A Year 6										(1,774.7)	(1,774.7)	(1,774.7)	(1,774.7)	(1,774.7)	
27	D&A Year 7											(1,825.9)	(1,825.9)	(1,825.9)	(1,825.9)	
28	D&A Year 8												(1,755.1)	(1,755.1)	(1,755.1)	
29	D&A Year 9													(2,004.0)	(2,004.0)	
30	D&A Year 10														(2,191.9)	
31	Total D&A	(231.9)	(422.6)	(947.1)	(1,166.4)	(1,407.5)	(2,441.2)	(3,710.0)	(5,162.5)	(6,827.1)	(8,601.9)	(10,427.7)	(12,182.8)	(14,186.9)	(16,378.8)	
32	Selected case:															
33	Capex as a % of revenues					55%	45%	40%	36%	32%	28%	24%	20%	20%	20%	
34																
35	Best case															
36	Capex as a % of revenues					53%	44%	39%	35%	31%	27%	24%	20%	20%	20%	
37																
38	Base case															
39	Capex as a % of revenues					54%	45%	40%	36%	32%	28%	24%	20%	20%	20%	
40																
41	Worst case															
42	Capex as a % of revenues					55%	45%	40%	36%	32%	28%	24%	20%	20%	20%	
43																

Use historical figures to calculate Capex as a percentage of revenues

Tesla valuation – Fixed asset roll forward

G20 : X ✓ fx =-\$G\$7/\$C\$16-\$F\$9/\$C\$17

A B C D E F G H I J K L M N O P

Fixed asset roll forward

		31Dec2014Act	31Dec2015	31Dec2016	30Sep2017	31Dec2018	31Dec2019	31Dec2020	31Dec2021	31Dec2022	31Dec2023	31Dec2024	31Dec2025	31Dec2026	31Dec2027
(in million)		Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act
Beginning PP&E		738.5	1,829.3	3,403.3	5,983.0	9,394.4	19,704.7	32,768.9	48,091.8	64,716.2	82,858.8	100,877.8	117,838.3	131,981.6	147,855.3
Capex		1,322.7	1,996.7	3,526.7	4,577.8	11,717.8	15,505.4	19,032.9	21,786.9	24,969.7	26,621.0	27,388.2	26,326.1	30,060.6	32,879.0
D&A		(231.9)	(422.6)	(947.1)	(1,166.4)	(1,407.5)	(2,441.2)	(3,710.0)	(5,162.5)	(6,827.1)	(8,601.9)	(10,427.7)	(12,182.8)	(14,186.9)	(16,378.8)
Ending PP&E		1,829.3	3,403.3	5,983.0											
D&A as a % of PP&E		-31.4%	-23.1%	-27.1%											
D&A as a % of revenues		-7.3%	-10.4%	-13.1%											
Capex as a % of PP&E		179.1%	109.2%	103.0%											
Capex as a % of revenues		41.4%	49.3%	50.0%											

Calculate annual depreciation in the following way:
Year 1: Ending PP&E 2017 / Useful life historical assets + Capex/Useful life Capex
Year 2-10: Capex/Useful life Capex

- Useful life Capex 15
- Useful life historical assets 15

		31Dec2014Act	31Dec2015	31Dec2016	30Sep2017	31Dec2018	31Dec2019	31Dec2020	31Dec2021	31Dec2022	31Dec2023	31Dec2024	31Dec2025	31Dec2026	31Dec2027
(in million)		Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act	Act
D&A Year 1					(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)	(1,407.5)
D&A Year 2						(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)	(1,033.7)
D&A Year 3							(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)	(1,268.9)
D&A Year 4								(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)	(1,452.5)
D&A Year 5									(1,664.6)	(1,664.6)	(1,664.6)	(1,664.6)	(1,664.6)	(1,664.6)	(1,664.6)
D&A Year 6										(1,774.7)	(1,774.7)	(1,774.7)	(1,774.7)	(1,774.7)	(1,774.7)
D&A Year 7											(1,825.9)	(1,825.9)	(1,825.9)	(1,825.9)	(1,825.9)
D&A Year 8												(1,755.1)	(1,755.1)	(1,755.1)	(1,755.1)
D&A Year 9													(2,004.0)	(2,004.0)	(2,004.0)
D&A Year 10															(2,191.9)
Total D&A		(231.9)	(422.6)	(947.1)	(1,166.4)	(1,407.5)	(2,441.2)	(3,710.0)	(5,162.5)	(6,827.1)	(8,601.9)	(10,427.7)	(12,182.8)	(14,186.9)	(16,378.8)

Calculate annual depreciation in the following way:
 Year 1: Ending PP&E 2017 / Useful life historical assets + Capex/Useful life Capex
 Year 2-10: Capex/Useful life Capex

Tesla valuation – Working capital

F9		= 'Balance Sheet Input'!F37														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1		Working capital														
2																
3		(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.
4		Trade receivables	226.6	169.0	499.1	607.7	1,373.2	2,180.5	3,011.1	3,829.8	4,938.0	6,016.6	7,221.7	8,330.0	9,511.6	10,403.4
5		Inventory	953.7	1,277.8	2,067.5	2,471.4	8,450.4	13,418.2	18,529.8	23,567.7	30,387.0	37,024.6	44,440.2	51,260.3	58,531.8	64,019.6
6		Trade payables	777.9	916.1	1,860.3	2,385.8	5,859.9	9,268.1	12,428.8	15,350.1	19,136.6	22,871.4	27,468.2	31,707.3	36,232.5	39,645.4
7																
8		Selected case:														
9		DSO	25.5	15.0	25.7	25.8	23.0								23.0	23.0
10		DIO	148.2	147.3	137.8	133.1	141.6								141.6	141.6
11		DPO	120.9	105.6	124.0	128.4	119.7								119.7	119.7
12																
13		Best case														
14		DSO					22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
15		DIO					138.8	138.8	138.8	138.8	138.8	138.8	138.8	138.8	138.8	138.8
16		DPO					122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1
17																
18		Base case														
19		DSO					23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
20		DIO					141.6	141.6	141.6	141.6	141.6	141.6	141.6	141.6	141.6	141.6
21		DPO					119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7
22																
23		Worst case														
24		DSO					23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
25		DIO					148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7
26		DPO					117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3
27																
28																

Calculate historical DSO, DIO, and DPO (we have done it in the Balance Sheet Input sheet)

Tesla valuation – Working capital

G4		=G9*Revenues!G\$10/360														
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
1	Working capital															
2																
3	(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act.	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.	
4	Trade receivables	226.6	169.0	499.1	607.7	1,373.2	2,180.5	3,011.1	3,829.8	4,938.0	6,016.6	7,221.7	8,330.0	9,511.6	10,403.4	
5	Inventory	953.7	1,277.8	2,067.5	2,471.4	8,450.4	13,418.2	18,529.8	23,567.7	30,387.0	37,024.6	44,440.2	51,260.3	58,531.8	64,019.6	
6	Trade payables	777.9	916.1	1,860.3	2,385.8	5,859.9	9,268.1	12,428.8	15,350.1	19,136.6	22,871.4	27,468.2	31,707.3	36,232.5	39,645.4	
7																
8	Selected case:															
9	DSO	25.5	15.0	25.7	25.8	23.0										
10	DIO	148.2	147.3	137.8	133.1	141.6										
11	DPO	120.9	105.6	124.0	128.4	119.7										
12																
13	Best case															
14	DSO					22.5										
15	DIO					138.8										
16	DPO					122.1										
17																
18	Base case															
19	DSO					23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	
20	DIO					141.6	141.6	141.6	141.6	141.6	141.6	141.6	141.6	141.6	141.6	
21	DPO					119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	
22																
23	Worst case															
24	DSO					23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	
25	DIO					148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	
26	DPO					117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	
27																
28																

To calculate Trade receivables in the forecast period:
 $\text{DSO} * \text{Revenues} / 360$

To calculate Inventory in the forecast period:
 $\text{DIO} * \text{Cost of sales} / 360$

To calculate Trade payables in the forecast period:
 $\text{DPO} * \text{Cost of sales} / 360$

To calculate Trade receivables in the forecast period:

$DSO * Revenues / 360$

To calculate Inventory in the forecast period:

$DIO * Cost\ of\ sales / 360$

To calculate Trade payables in the forecast period:

$DPO * Cost\ of\ sales / 360$

Tesla valuation – Working capital

G4		=G9*Revenues!G\$10/360														
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
1	Working capital															
2																
3	(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act.	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.	
4	Trade receivables	226.6	169.0	499.1	607.7	1,373.2	2,180.5	3,011.1	3,829.8	4,938.0	6,016.6	7,221.7	8,330.0	9,511.6	10,403.4	
5	Inventory	953.7	1,277.8	2,067.5	2,471.4	8,450.4	13,418.2	18,529.8	23,567.7	30,387.0	37,024.6	44,440.2	51,260.3	58,531.8	64,019.6	
6	Trade payables	777.9	916.1	1,860.3	2,385.8	5,859.9	9,268.1	12,428.8	15,350.1	19,136.6	22,871.4	27,468.2	31,707.3	36,232.5	39,645.4	
7																
8	Selected case:															
9	DSO	25.5	15.0	25.7	25.8	23.0										
10	DIO	148.2	147.3	137.8	133.1	141.6										
11	DPO	120.9	105.6	124.0	128.4	119.7										
12																
13	Best case															
14	DSO					22.5										
15	DIO					138.8										
16	DPO					122.1										
17																
18	Base case															
19	DSO					23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	
20	DIO					141.6	141.6	141.6	141.6	141.6	141.6	141.6	141.6	141.6	141.6	
21	DPO					119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.7	
22																
23	Worst case															
24	DSO					23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	
25	DIO					148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	148.7	
26	DPO					117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	
27																
28																

To calculate Trade receivables in the forecast period:
 $\text{DSO} * \text{Revenues} / 360$

To calculate Inventory in the forecast period:
 $\text{DIO} * \text{Cost of sales} / 360$

To calculate Trade payables in the forecast period:
 $\text{DPO} * \text{Cost of sales} / 360$

To calculate Trade receivables in the forecast period:

$DSO * Revenues / 360$

To calculate Inventory in the forecast period:

$DIO * Cost\ of\ sales / 360$

To calculate Trade payables in the forecast period:

$DPO * Cost\ of\ sales / 360$

Tesla valuation – Financing

G9		X		✓		fx		=-G8*G10											
A		B		C		D		E		F		G		H		I		J	
1		Financing																	
2																			
3		Cover negative cash flows with:																	
4		Debt		50%															
5		Equity		50%															
6																			
7		(in million)		2014		2015		2016		2017Q3		2018		2019		2020		2021	
8				Act		Act		Act		Act.		Exp.		Exp.		Exp.		Exp.	
9		Long-term debt and capital leases, net of current		1,818.8		2,021.1		5,860.0		9,581.6		9,581.6		10,845.2		13,833.3		17,811.8	
10		Interest expense		(100.9)		(118.9)		(198.8)		(324.9)		(567.2)		(642.0)		(818.9)		(1,054.5)	
11		Interest rate		-5.5%		-5.9%		-3.4%		-3.4%		5.9%		5.9%		5.9%		5.9%	
12		Current bond Yield as of 12 Jan		5.92%															
13																			
14		Unlevered Free Cash Flow																	
15		Debt																	
16		Equity																	
17		Difference to cover:																	
18																			
19																			
20																			
21																			
22																			
23																			
24																			

Assume cost of debt remains constant throughout the entire forecast period

Tesla valuation – Financing

G9		=G8*G10							
A	B	C	D	E	F	G	H	I	J
1	Financing								
2									
3	Cover negative cash flows with:								
4	Debt	50%							
5	Equity	50%							
6									
7	(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act.	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.
8	Long-term debt and capital leases, net of current	1,818.8	2,021.1	5,860.0	9,581.6	9,581.6	10,845.2	13,833.3	17,811.8
9	Interest expense	(100.9)	(118.9)	(198.8)	(324.9)	(567.2)	(642.0)	(818.9)	(1,054.5)
10	Interest rate	-5.5%	-5.9%	-3.4%	-3.4%	5.9%	5.9%	5.9%	5.9%
11									
12	Current bond Yield as of 12 Jan	5.92%							
13									
14	Unlevered Free Cash Flow					(2,527.1)	(5,976.3)	(7,956.9)	(8,482.8)
15	Debt					1,263.5	2,988.2	3,978.4	4,241.4
16	Equity					1,263.5	2,988.2	3,978.4	4,241.4
17	Difference to cover:					-	-	-	-
18									
19									
20									
21									
22									
23									
24									

Interest expense = Long-term debt * Interest rate

Tesla valuation – Financing

Given that the company produces negative cash flows, it will need additional financing during the forecast period. Here (on the left side), we assume such additional financing is covered with 50% debt and 50% equity. These percentages can be easily changed to test different hypothesis.

	2014 Act	2015	2016	2017	2018	2019	2020
Long-term debt and capital leases, net of current	1,818.8	2,021.1	5,860.0	9,581.6	9,581.6	10,845.2	13,833.3
Interest expense	(100.9)	(118.9)	(198.8)	(324.9)	(567.2)	(642.0)	(818.9)
Interest rate	-5.5%	-5.9%	-3.4%	-3.4%	5.9%	5.9%	5.9%
Current bond Yield as of 12 Jan	5.92%						
Unlevered Free Cash Flow					(2,527.1)	(5,976.3)	(7,956.9)
Debt					1,263.5	2,988.2	3,978.4
Equity					1,263.5	2,988.2	3,978.4
Difference to cover:					-	-	-

Tesla valuation – WACC

C8		=C4+C5*C6															
A	B	C	D	L	M	N	O	P									
1	WACC																
2																	
3																	
4	Risk-free rate	2.55%															
5	Market risk premium	6.00%															
6	Beta (as of 10 Jan 2018)	0.65															
7																	
8	Cost of equity	6.5%															
9	Current bond Yield as of 12 Jan	5.9%															
10																	
11																	
12	(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act.	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.		
13	Debt					11,169.4	14,157.6	18,136.0	22,377.4	24,733.8	25,972.6	25,972.6	25,972.6	25,972.6	25,972.6		
14	Equity					4,295.7	2,453.1	1,901.4	2,967.2	4,828.5	8,028.3	12,113.5	16,938.9	22,542.0	28,736.7		
15																	
16	Debt / (Debt + Equity)					0.72	0.85	0.91	0.88	0.84	0.76	0.68	0.61	0.54	0.47		
17	Equity / (Debt + Equity)					0.28	0.15	0.09	0.12	0.16	0.24	0.32	0.39	0.46	0.53		
18	WACC					4.8%	4.5%	4.4%	4.4%	4.5%	4.7%	4.9%	5.1%	5.2%	5.4%		
19																	
20																	
21																	

Calculate cost of equity using the CAPM:
Risk-free + Beta * Market risk premium

Calculate cost of equity using the CAPM:
Risk-free + Beta * Market risk premium

Tesla valuation – WACC

C9																			
1	WACC																		
2																			
3																			
4	Risk-free rate		2.55%																
5	Market risk premium		6.00%																
6	Beta (as of 10 Jan 2018)		0.65																
7																			
8	Cost of equity		6.5%																
9	Current bond Yield as of 12 Jan		5.9%																
10																			
11																			
12	(in million)	2014	2015	2016	2017Q3	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027				
13	Debt	Act	Act	Act	Act	Exp.	Exp.	Exp.	Exp.	Exp.	Exp.	Exp.	Exp.	Exp.	Exp.				
14	Equity					11,169.4	14,157.6	18,136.0	22,377.4	24,733.8	25,972.6	25,972.6	25,972.6	25,972.6	25,972.6				
15						4,295.7	2,453.1	1,901.4	2,967.2	4,828.5	8,028.3	12,113.5	16,938.9	22,542.0	28,736.7				
16	Debt / (Debt + Equity)					0.72	0.85	0.91	0.88	0.84	0.76	0.68	0.61	0.54	0.47				
17	Equity / (Debt + Equity)					0.28	0.15	0.09	0.12	0.16	0.24	0.32	0.39	0.46	0.53				
18	WACC					4.8%	4.5%	4.4%	4.4%	4.5%	4.7%	4.9%	5.1%	5.2%	5.4%				
19																			
20																			

Use Tesla's current YTM as cost of debt

Tesla valuation – WACC

G16		=G13/(G13+G14)													
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	WACC														
2															
3															
4	Risk-free rate	2.55%													
5	Market risk premium	6.00%													
6	Beta (as of 10 Jan 2018)	0.65													
7															
8	Cost of equity	6.5%													
9	Current bond Yield as of 12 Jan	5.9%													
10															
11															
12	(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act.	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.
13	Debt					11,169.4	14,157.6	18,136.0	22,377.4	24,733.8	25,972.6	25,972.6	25,972.6	25,972.6	25,972.6
14	Equity					4,295.7	2,453.1	1,901.4	2,967.2	4,828.5	8,028.3	12,113.5	16,938.9	22,542.0	28,736.7
15															
16	Debt / (Debt + Equity)					0.72	0.85	0.91	0.88	0.84	0.76	0.68	0.61	0.54	0.47
17	Equity / (Debt + Equity)					0.28	0.15	0.09	0.12	0.16	0.24	0.32	0.39	0.46	0.53
18	WACC					4.8%	4.5%	4.4%	4.4%	4.5%	4.7%	4.9%	5.1%	5.2%	5.4%
19															
20															
21															

Calculate the portion of debt and equity financing

Calculate the portion of debt and equity financing

Tesla valuation – WACC

G18		=G16*\$C\$9*(1-Driver!\$C\$4)+\$C\$8*G17														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	WACC															
2																
3																
4	Risk-free rate		2.55%													
5	Market risk premium		6.00%													
6	Beta (as of 10 Jan 2018)		0.65													
7																
8	Cost of equity		6.5%													
9	Current bond Yield as of 12 Jan		5.9%													
10																
11																
12	(in million)		2014 Act	2015 Act	2016 Act	2017Q3 Act.	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.
13	Debt						11,169.4	14,157.6	18,136.0	22,377.4	24,733.8	25,972.6	25,972.6	25,972.6	25,972.6	25,972.6
14	Equity						4,295.7	2,453.1	1,901.4	2,967.2	4,828.5	8,028.3	12,113.5	16,938.9	22,542.0	28,736.7
15																
16	Debt / (Debt + Equity)						0.72	0.85	0.91	0.88	0.84	0.76	0.68	0.61	0.54	0.47
17	Equity / (Debt + Equity)						0.28	0.15	0.09	0.12	0.16	0.24	0.32	0.39	0.46	0.53
18	WACC						4.8%	4.5%	4.4%	4.4%	4.5%	4.7%	4.9%	5.1%	5.2%	5.4%
19																
20																

$$\text{WACC} = E / (D+E) * \text{Cost of equity} + D / (D+E) * \text{Cost of debt} * (1-t)$$

A satellite view of Earth from space, showing the curvature of the planet and city lights at night. The word "Output" is overlaid in white text on the left side.

Output

Tesla valuation – P&L

G11

=IF(G10>0,-G10*Drivers!\$C\$4,0)

	A	B	C	D	E	F	G	H	I	J	K
1	P&L										
2											
3	(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act.	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	
4	Revenues	3,198.4	4,046.0	7,000.1	8,470.5	21,484.7	34,115.2	47,111.2	59,920.0	77,250.0	
5	Cost of sales	(2,316.7)	(3,122.5)	(5,400.9)	(6,772.9)	(17,618.0)	(27,864.7)	(37,367.5)	(46,150.4)	(57,530.0)	
6	Gross profit	881.7	923.5	1,599.3	1,697.6	3,866.7	6,250.6	9,743.8	13,769.6	19,720.0	
7	Operating expenses	(1,068.4)	(1,640.1)	(2,266.6)	(2,817.6)	(6,445.4)	(10,439.3)	(13,455.0)	(15,890.8)	(18,910.0)	
8	EBIT	(186.7)	(716.6)	(667.3)	(1,120.1)	(2,578.7)	(4,188.7)	(3,711.2)	(2,121.2)	81.0	
9	Interest expenses/income	(97.9)	(159.0)	(79.0)	(324.9)	(567.2)	(642.0)	(818.9)	(1,054.5)	(1,300.0)	
10	EBT	(284.6)	(875.6)	(746.3)	(1,445.0)	(3,145.9)	(4,830.7)	(4,530.1)	(3,175.6)	(490.0)	
11	Taxes	(9.4)	(13.0)	(26.7)	(40.6)	-	-	-	-	-	
12	Net Income	(294.0)	(888.7)	(773.0)	(1,485.6)	(3,145.9)	(4,830.7)	(4,530.1)	(3,175.6)	(490.0)	

Fill in the P&L sheet with available information and calculate Taxes. We assume that when EBT is negative, the company will pay 0 corporate income taxes.

Tesla valuation – Balance sheet

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1																				
2																				
3		(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act.	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.		Assumption		
4		Cash	1,905.7	1,196.9	3,393.2	3,530.0	2,189.2	290.6	(1,641.7)	(3,332.5)	(4,395.0)	(5,406.5)	(3,815.3)	182.8	4,115.3	4,526.5		Cash flow sheet		
5		Restricted cash and securities	17.9	22.6	105.5	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2	138.2		Stays flat		
6		Trade receivables	226.6	169.0	499.1	607.7	1,373.2	2,180.5	3,011.1	3,829.8	4,938.0	6,016.6	7,221.7	8,330.0	9,511.6	10,403.4		Working capital sheet		
7		Inventory	953.7	1,277.8	2,067.5	2,471.4	8,450.4	13,418.2	18,529.8	23,567.7	30,387.0	37,024.6	44,440.2	51,260.3	58,531.8	64,019.6		Working capital sheet		
8		Prepaid expenses	76.1	115.7	194.5	321.4	634.4	1,007.4	1,391.2	1,769.4	2,281.3	2,779.7	3,336.4	3,848.4	4,394.4	4,806.4		Grows as a % of revenues		
9		as a % of revenues	2.4%	2.9%	2.8%	3.8%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%				
10		Operating lease vehicles	766.7	1,791.4	3,134.1	3,834.2	3,834.2	3,834.2	3,834.2	3,834.2	3,834.2	3,834.2	3,834.2	3,834.2	3,834.2	3,834.2		Stays flat		
11		Solar energy systems leased	-	-	5,919.9	6,288.0												Stays flat		
12		PP&E	1,829.3	3,403.3	5,983.0	9,394.4												PP&E sheet		
13		Intangible assets	-	12.8	376.1	417.5												Stays flat		
14		Other assets	54.6	78.4	991.2	1,104.3												Grows as a % of revenues		
15		as a % of revenues	1.7%	1.9%	14.2%	13.0%														
16		Total assets	5,830.7	8,067.9	22,664.1	28,107.1														
17																				
18		Accounts payable	777.9	916.1	1,860.3	2,385.8												Working capital sheet		
19		Accrued liabilities	268.9	422.8	1,210.0	1,477.8												Grows as a % of revenues		
20		as a % of revenues	8.4%	10.4%	17.3%	17.4%														
21		Deferred revenue	191.7	424.0	763.1	951.7												Grows as a % of revenues		
22		as a % of revenues	6.0%	10.5%	10.9%	11.2%														
23		Resale value guarantees	-	136.8	179.5	543.3												Grows as a % of revenues		
24		as a % of revenues	0.0%	3.4%	2.6%	6.4%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%				
25		Customer deposits	257.6	283.4	663.9	686.1	1,753.2	2,783.9	3,844.3	4,889.6	6,304.3	7,681.4	9,220.0	10,634.9	12,143.5	13,282.1		Grows as a % of revenues		
26		as a % of revenues	8.1%	7.0%	9.5%	8.1%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%				
27		Long-term debt	2,429.9	2,649.0	6,844.3	9,905.8	11,169.4	14,157.6	18,136.0	22,377.4	24,733.8	25,972.6	25,972.6	25,972.6	25,972.6	25,972.6		Financing sheet		
28		Other liabilities	993.0	2152.1	5604.9	5978.5	16,183.2	25,697.0	35,486.1	45,134.3	58,193.7	70,905.3	85,106.9	98,167.9	112,093.6	122,603.1		Grows as a % of revenues		
29		as a % of revenues	31.0%	53.2%	80.1%	70.6%	75.3%	75.3%	75.3%	75.3%	75.3%	75.3%	75.3%	75.3%	75.3%	75.3%				
30		Total liabilities	4,919.0	6,984.2	17,126.0	21,929.1	41,655.64	62,529.36	84,564.91	106,409.37	132,425.16	156,742.29	182,950.07	207,064.40	232,780.57	252,186.15				
31		Equity	911.7	1,083.7	5,538.1	6,178.0	4,295.65	2,453.09	1,901.41	2,967.19	4,828.53	8,028.33	12,113.45	16,938.85	22,541.97	28,736.73				
32																				
33		Total liabilities & equity	5,830.7	8,067.9	22,664.1	28,107.1	45,951.3	64,982.5	86,466.3	109,376.6	137,253.7	164,770.6	195,063.5	224,003.3	255,322.5	280,922.9				
34																				
35		Check	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
36																				

Fill in the Balance Sheet with the items we have already forecasted. Model the rest of the Balance Sheet as flat or as items growing in sync with revenues. If we assume an item grows in sync with revenues, then this means it is an essential part of the firm's operations and the company must increase it to expand its business.

Tesla valuation – Cash flow

G5 : ✕ ✓ fx =G4*0.3															
A	B	C	D	E	F		M	N	O	P					
1	Cash Flow														
2															
3	(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.
4	EBIT		(716.6)	(667.3)	(1,120.1)	(2,578.7)	(4,188.7)	(3,711.2)	(2,121.2)	810.5	4,246.5	7,354.3	8,411.8	9,522.8	10,368.0
5	Operating taxes (30%)		(13.0)	(26.7)	(40.6)	773.6	1,256.6	1,113.4	636.4	(243.1)	(1,274.0)	(2,206.3)	(2,523.5)	(2,856.9)	(3,110.4)
6	NOPAT		(729.7)	(694.0)	(1,160.7)	(1,805.1)	(2,932.1)	(2,597.8)	(1,484.8)	567.3	2,972.6	5,148.0	5,888.3	6,666.0	7,257.6
7	Add-back D&A		422.6	947.1	1,166.4	1,407.5	2,441.2	3,710.0	5,162.5	6,827.1	8,601.9	10,427.7	12,182.8	14,186.9	16,378.8
8	Gross Cash Flow		(307.1)	253.1	5.7	(397.6)	(490.9)	1,112.2	3,677.7	7,394.5	11,574.4	15,575.7	18,071.1	20,852.9	23,636.4
9															
10	Trade receivables		57.6	(330.2)	(108.6)	(765.5)	(807.3)	(830.6)	(818.7)	(1,108.1)	(1,078.6)	(1,205.1)	(1,108.3)	(1,181.6)	(891.8)
11	Inventory		(324.2)	(789.6)	(403.9)	(5,979.0)	(4,967.8)	(5,111.6)	(5,037.9)	(6,819.2)	(6,637.6)	(7,415.7)	(6,820.1)	(7,271.5)	(5,487.8)
12	Accounts payable		138.2	944.2	525.4	3,474.1	3,408.2	3,160.7	2,921.3	3,786.5	3,734.8	4,596.8	4,239.1	4,525.2	3,412.9
13	Investments in Working Capital		(128.3)	(175.6)	12.9	(3,270.3)	(2,367.0)	(2,781.5)	(2,935.3)	(4,140.9)	(3,981.4)	(4,023.9)	(3,689.3)	(3,928.0)	(2,966.7)
14															
15	Capex		(1,996.7)	(3,526.7)	(4,577.8)	(11,717.8)	(15,505.4)	(19,032.9)	(21,786.9)	(24,969.7)	(26,621.0)	(27,388.2)	(26,326.1)	(30,060.6)	(32,879.0)
16	Other assets		(1,105.5)	(8,700.4)	(1,382.2)	(2,130.3)	(2,090.5)	(2,151.0)	(2,120.0)	(2,869.6)	(2,793.2)	(3,120.6)	(2,869.9)	(3,059.9)	(2,309.3)
17	Other liabilities		1,707.9	5,002.3	1,216.1	14,988.9	14,477.4	14,896.4	14,681.8	19,872.9	19,343.5	21,611.0	19,875.3	21,191.0	15,992.7
18															
19	Unlevered Free Cash Flow		(1,829.6)	(7,147.4)	(4,725.4)	(2,527.1)	(5,976.3)	(7,956.9)	(8,482.8)	(4,712.9)	(2,477.6)	2,654.0	5,061.0	4,995.3	1,474.1
20															
21	Interest expenses		(159.0)	(79.0)	(324.9)	(567.2)	(642.0)	(818.9)	(1,054.5)	(1,305.5)	(1,445.0)	(1,518.4)	(1,518.4)	(1,518.4)	(1,518.4)
22	Delta Financial liabilities		219.1	4,195.2	3,061.6	1,263.5	2,988.2	3,978.4	4,241.4	2,356.4	1,238.8	-	-	-	-
23	Delta equity/Other equity movements		1,060.7	5,227.4	2,125.5	1,263.5	2,988.2	3,978.4	4,241.4	2,356.4	1,238.8	-	-	-	-
24	Tax adjustment		-	-	-	(773.6)	(1,256.6)	(1,113.4)	(636.4)	243.1	433.5	455.5	455.5	455.5	455.5
25															
26	Net Cash Flow		(708.8)	2,196.3	136.8	(1,340.8)	(1,898.6)	(1,932.3)	(1,690.8)	(1,062.4)	(1,011.5)	1,591.2	3,998.2	3,932.4	411.3
27															

Start the cash flow calculation by calculating Operating taxes, which would allow us to calculate NOPAT (Net Operating Profit After Tax)

Tesla valuation – Cash flow

G8															=SUM(G6:G7)	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Cash Flow															
2																
3	(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act.	2018 Exp.							2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.
4	EBIT		(716.6)	(667.3)	(1,120.1)	(2,578.7)							354.3	8,411.8	9,522.8	10,368.0
5	Operating taxes (30%)		(13.0)	(26.7)	(40.6)	773.6							206.3)	(2,523.5)	(2,856.9)	(3,110.4)
6	NOPAT		(729.7)	(694.0)	(1,160.7)	(1,805.1)							148.0	5,888.3	6,666.0	7,257.6
7	Add-back D&A		422.6	947.1	1,166.4	1,407.5	2,441.2	3,710.0	5,162.5	6,827.1	8,601.9	10,427.7	12,182.8	14,186.9	16,378.8	
8	Gross Cash Flow		(307.1)	253.1	5.7	(397.6)	(490.9)	1,112.2	3,677.7	7,394.5	11,574.4	15,575.7	18,071.1	20,852.9	23,636.4	
9																
10	Trade receivables		57.6	(330.2)	(108.6)	(765.5)	(807.3)	(830.6)	(818.7)	(1,108.1)	(1,078.6)	(1,205.1)	(1,108.3)	(1,181.6)	(891.8)	
11	Inventory		(324.2)	(789.6)	(403.9)	(5,979.0)	(4,967.8)	(5,111.6)	(5,037.9)	(6,819.2)	(6,637.6)	(7,415.7)	(6,820.1)	(7,271.5)	(5,487.8)	
12	Accounts payable		138.2	944.2	525.4	3,474.1	3,408.2	3,160.7	2,921.3	3,786.5	3,734.8	4,596.8	4,239.1	4,525.2	3,412.9	
13	Investments in Working Capital		(128.3)	(175.6)	12.9	(3,270.3)	(2,367.0)	(2,781.5)	(2,935.3)	(4,140.9)	(3,981.4)	(4,023.9)	(3,689.3)	(3,928.0)	(2,966.7)	
14																
15	Capex		(1,996.7)	(3,526.7)	(4,577.8)	(11,717.8)	(15,505.4)	(19,032.9)	(21,786.9)	(24,969.7)	(26,621.0)	(27,388.2)	(26,326.1)	(30,060.6)	(32,879.0)	
16	Other assets		(1,105.5)	(8,700.4)	(1,382.2)	(2,130.3)	(2,090.5)	(2,151.0)	(2,120.0)	(2,869.6)	(2,793.2)	(3,120.6)	(2,869.9)	(3,059.9)	(2,309.3)	
17	Other liabilities		1,707.9	5,002.3	1,216.1	14,988.9	14,477.4	14,896.4	14,681.8	19,872.9	19,343.5	21,611.0	19,875.3	21,191.0	15,992.7	
18																
19	Unlevered Free Cash Flow		(1,829.6)	(7,147.4)	(4,725.4)	(2,527.1)	(5,976.3)	(7,956.9)	(8,482.8)	(4,712.9)	(2,477.6)	2,654.0	5,061.0	4,995.3	1,474.1	
20																
21	Interest expenses		(159.0)	(79.0)	(324.9)	(567.2)	(642.0)	(818.9)	(1,054.5)	(1,305.5)	(1,445.0)	(1,518.4)	(1,518.4)	(1,518.4)	(1,518.4)	
22	Delta Financial liabilities		219.1	4,195.2	3,061.6	1,263.5	2,988.2	3,978.4	4,241.4	2,356.4	1,238.8	-	-	-	-	
23	Delta equity/Other equity movements		1,060.7	5,227.4	2,125.5	1,263.5	2,988.2	3,978.4	4,241.4	2,356.4	1,238.8	-	-	-	-	
24	Tax adjustment		-	-	-	(773.6)	(1,256.6)	(1,113.4)	(636.4)	243.1	433.5	455.5	455.5	455.5	455.5	
25																
26	Net Cash Flow		(708.8)	2,196.3	136.8	(1,340.8)	(1,898.6)	(1,932.3)	(1,690.8)	(1,062.4)	(1,011.5)	1,591.2	3,998.2	3,932.4	411.3	
27																

Add-back D&A to obtain Gross Cash Flow. D&A is a non-cash expense.

Tesla valuation – Cash flow

NORM.DIST		✕ ✓ f_x		=G8+G13+G16+G17+G15											
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Cash Flow														
2															
3	(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act.	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.
4	EBIT		(716.6)	(667.3)	(1,120.1)	(2,578.7)	(4,188.7)	(3,711.2)	(2,121.2)	810.5	4,246.5	7,354.3	8,411.8	9,522.8	10,368.0
5	Operating taxes (30%)		(13.0)	(26.7)	(40.6)	773.6	1,256.6	1,113.4	636.4	(243.1)	(1,274.0)	(2,206.3)	(2,523.5)	(2,856.9)	(3,110.4)
6	NOPAT		(729.7)	(694.0)	(1,160.7)	(1,805.1)	(2,932.1)	(2,597.8)	(1,484.8)	567.3	2,972.6	5,148.0	5,888.3	6,666.0	7,257.6
7	Add-back D&A		422.6	947.1	1,166.4	1,407.5	2,441.2	3,710.0	5,162.5	6,827.1	8,601.9	10,427.7	12,182.8	14,186.9	16,378.8
8	Gross Cash Flow		(307.1)	253.1	5.7	(397.6)	(490.9)	1,112.2	3,677.7	7,394.5	11,574.4	15,575.7	18,071.1	20,852.9	23,636.4
9															
10	Trade receivables		57.6	(330.2)	(108.6)	(765.5)	(807.3)	(830.6)	(818.7)	(1,108.1)	(1,078.6)	(1,205.1)	(1,108.3)	(1,181.6)	(891.8)
11	Inventory		(324.2)	(789.6)	(403.9)	(5,979.0)	(4,967.8)	(5,111.6)	(5,037.9)	(6,819.2)	(6,637.6)	(7,415.7)	(6,820.1)	(7,271.5)	(5,487.8)
12	Accounts payable		138.2	944.2	525.4	3,474.1	3,408.2	3,160.7	2,921.3	3,786.5	3,734.8	4,596.8	4,239.1	4,525.2	3,412.9
13	Investments in Working Capital		(128.3)	(175.6)	12.9	(3,270.3)	(2,367.0)	(2,781.5)	(2,935.3)	(4,140.9)	(3,981.4)	(4,023.9)	(3,689.3)	(3,928.0)	(2,966.7)
14															
15	Capex		(1,996.7)	(3,526.7)	(4,577.8)	(11,717.8)	(15,505.4)	(19,032.9)	(21,786.9)	(24,969.7)	(26,621.0)	(27,388.2)	(26,326.1)	(30,060.6)	(32,879.0)
16	Other assets		(1,105.5)	(8,700.4)	(1,382.2)	(2,130.3)	(2,090.5)	(2,151.0)	(2,120.0)	(2,869.6)	(2,793.2)	(3,120.6)	(2,869.9)	(3,059.9)	(2,309.3)
17	Other liabilities		1,707.9	5,002.3	1,216.1	14,988.9	14,477.4	14,896.4	14,681.8	19,872.9	19,343.5	21,611.0	19,875.3	21,191.0	15,992.7
18															
19	Unlevered Free Cash Flow		(1,829.6)	(7,147.4)	(4,725.4)	(16,717.8)	(5,976.3)	(7,956.9)	(8,482.8)	(4,712.9)	(2,477.6)	2,654.0	5,061.0	4,995.3	1,474.1
20															
21	Interest expenses													(18.4)	(1,518.4)
22	Delta Financial liabilities													-	-
23	Delta equity/Other equity movements													-	-
24	Tax adjustment													55.5	455.5
25															
26	Net Cash Flow		(708.8)	2,196.3	136.8	(1,340.8)	(1,898.6)	(1,932.3)	(1,690.8)	(1,062.4)	(1,011.5)	1,591.2	3,998.2	3,932.4	411.3
27															

Unlevered Free Cash Flow = Gross Cash Flow +(-) Investments in Working capital – Capex +(-) Change in Other assets +(-) Change in Other liabilities

Unlevered Free Cash Flow = Gross Cash Flow +(-) Investments in Working capital – Capex +(-) Change in Other assets +(-) Change in Other liabilities

Tesla valuation – Cash flow

G24 : ✕ ✓ fx =P&L!G11-G5															
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Cash Flow														
2															
3	(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act.	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.	2023 Exp.	2024 Exp.	2025 Exp.	2026 Exp.	2027 Exp.
4	EBIT		(716.6)	(667.3)	(1,120.1)	(2,578.7)	(4,188.7)	(3,711.2)	(2,121.2)	810.5	4,246.5	7,354.3	8,411.8	9,522.8	10,368.0
5	Operating taxes (30%)		(13.0)	(26.7)	(40.6)	773.6	1,256.6	1,113.4	636.4	(243.1)	(1,274.0)	(2,206.3)	(2,523.5)	(2,856.9)	(3,110.4)
6	NOPAT		(729.7)	(694.0)	(1,160.7)	(1,805.1)	(2,932.1)	(2,597.8)	(1,484.8)	567.3	2,972.6	5,148.0	5,888.3	6,666.0	7,257.6
7	Add-back D&A		422.6	947.1	1,166.4	1,407.5	2,441.2	3,710.0	5,162.5	6,827.1	8,601.9	10,427.7	12,182.8	14,186.9	16,378.8
8	Gross Cash Flow		(307.1)	253.1	5.7	(397.6)	(490.9)	1,112.2	3,677.7	7,394.5	11,574.4	15,575.7	18,071.1	20,852.9	23,636.4
9															
10	Trade receivables		57.6	(330.2)	(108.6)	(765.5)	(807.3)	(830.6)	(818.7)	(1,108.1)	(1,078.6)	(1,205.1)	(1,108.3)	(1,181.6)	(891.8)
11	Inventory		(324.2)	(789.6)	(403.9)	(5,979.0)	(4,967.8)	(5,111.6)	(5,037.9)	(6,819.2)	(6,637.6)	(7,415.7)	(6,820.1)	(7,271.5)	(5,487.8)
12	Accounts payable		138.2	944.2											
13	Investments in Working Capital		(128.3)	(175.6)											
14															
15	Capex		(1,996.7)	(3,526.7)											
16	Other assets		(1,105.5)	(8,700.4)											
17	Other liabilities		1,707.9	5,002.3											
18															
19	Unlevered Free Cash Flow		(1,829.6)	(7,147.4)											
20															
21	Interest expenses		(159.0)	(79.0)	(324.9)	(567.2)	(642.0)	(818.9)	(1,054.5)	(1,305.5)	(1,445.0)	(1,518.4)	(1,518.4)	(1,518.4)	(1,518.4)
22	Delta Financial liabilities		219.1	4,195.2	3,061.6	1,263.5	2,988.2	3,978.4	4,241.4	2,356.4	1,238.8	-	-	-	-
23	Delta equity/Other equity movements		1,060.7	5,227.4	2,125.5	1,263.5	2,988.2	3,978.4	4,241.4	2,356.4	1,238.8	-	-	-	-
24	Tax adjustment		-	-	-	(773.6)	(1,256.6)	(1,113.4)	(636.4)	243.1	433.5	455.5	455.5	455.5	455.5
25															
26	Net Cash Flow		(708.8)	2,196.3	136.8	(1,340.8)	(1,898.6)	(1,932.3)	(1,690.8)	(1,062.4)	(1,011.5)	1,591.2	3,998.2	3,932.4	411.3
27															

To reconcile Unlevered Free Cash Flow and Net Cash Flow, we must consider a number of items related to the financial structure of the firm (interest expenses, financial liabilities, and equity) and adjust for the difference between taxes in the P&L and the Operating taxes we calculated here.

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Tesla valuation – DCF

The screenshot shows a spreadsheet titled "DCF Valuation". A blue callout box with white text states: "Assuming a 2% perpetuity growth rate (growth rate after the explicit forecast period). Some industry practitioners use 3% alternatively. This input is easily changed and tested." An arrow points from this box to a cell containing "2%", which is the input for the perpetuity growth rate (g). The spreadsheet also shows a WACC of 6.45%.

	2014 Act	2015 Act	2016 Act	2017Q3 Act.	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.	2022 Exp.
Unlevered Free Cash Flow					(2,029)	(5,214)	(7,073)	(7,511)	(3,353)
Discount factor (WACC)					4.8%	4.5%	4.4%	4.5%	4.6%
Present value of UFCF					(1,936)	(4,774)	(6,214)	(6,300)	(2,675)

Perpetuity Growth Rate-Based Valuation	
Total PV of Cash Flows	(7,161.2)
Continuing Value	90,147.6
PV of Continuing Value	52,339.2
Enterprise Value	45,178.0
+Cash	15,803.9
-Financial liabilities	(22,930.9)
Equity Value	38,051.0
Number of shares outstanding (as of 14 Jan 2018)	168.1
Price per share	226.4

Tesla valuation – DCF

Q8													=(P8*(1+C5))/(C4-C5)				
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	DCF Valuation																
2																	
3																	
4		WACC	6.45%														
5		g (Perpetuity growth)	2%														
6																	
7		(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act	2018 Exp.	2019 Exp.	2020 Exp.	2021 Exp.						10.0 2027 Exp.	Continuing Value
8		Unlevered Free Cash Flow					(2,029)	(5,214)	(7,073)	(7,511)						3,933	90,148
9																	
10		Discount factor (WACC)					4.8%	4.5%	4.4%	4.5%	4.6%	4.8%	5.1%	5.3%	5.4%	5.6%	5.6%
11		Present value of UFCF					(1,936)	(4,774)	(6,214)	(6,300)	(2,675)	(656)	3,375	4,963	4,772	2,283	52,339
12																	
13																	
14		Perpetuity Growth Rate-Based Valuation															
15		Total PV of Cash Flows				(7,161.2)	-15.9% of Enterprise Value										
16		Continuing Value				90,147.6											
17		PV of Continuing Value				52,339.2	115.9% of Enterprise Value										
18		Enterprise Value				45,178.0											
19		+Cash				15,803.9											
20		-Financial liabilities				(22,930.9)											
21		Equity Value				38,051.0											
22		Number of shares outstanding (as of 14 Jan 2018)				168.1											
23		Price per share				226.4											
24																	
25																	
26																	
27																	
28																	
29																	
30																	
31																	

Calculating Continuing Value
(what the firm's business is worth
after the explicit forecast period)

		WACC			
		5%	6%	7%	8%
g	1%	43,368	31,837	24,149	18,658
	2%	63,348	43,939	32,294	24,530
	3%	103,308	64,109	44,510	32,750
	4%	223,188	104,450	64,871	45,081

Tesla valuation – DCF

DCF Valuation

	2014 Act	2015 Act	2016 Act	2017 Q3 Act	2018 Exp.	2019 Exp.	2020 Exp.
Unlevered Free Cash Flow					(2,029)	(5,214)	(7,073)
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Perpetuity Growth Rate-Based Valuation

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4%	223,188	104,450	64,871	45,081

g

	10.0	Continuing Value
2027 Exp.	3,933	90,148
5.6%	2,283	8/(1+Q10)^P6

Calculating present value of Continuing Value (we are valuing the company today, hence we must discount the company's Continuing Value)

Tesla valuation – DCF

NORM.DIST		X ✓ f_x		=SUM(G11:P11)											
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	DCF Valuation														
2															
3															
4	WACC	6.45%													
5	g (Perpetuity growth)	2%													
6															
7	(in million)	2014 Act	2015 Act	2016 Act	2017Q3 Act	1.0 2018 Exp.	2.0 2019 Exp.	3.0 2020 Exp.	4.0 2021 Exp.	5.0 2022 Exp.	6.0 2023 Exp.	7.0 2024 Exp.	8.0 2025 Exp.	9.0 2026 Exp.	10.0 2027 Exp.
8	Unlevered Free Cash Flow					(2,029)	(5,214)	(7,073)	(7,511)	(3,353)	(870)	4,770	7,486	7,691	3,933
9															
10	Discount factor (WACC)					4.8%	4.5%	4.4%	4.5%	4.6%	4.8%	5.1%	5.3%	5.4%	5.6%
11	Present value of UFCF					(1,936)	(4,774)	(6,214)	(6,300)	(2,675)	(656)	3,375	4,963	4,772	2,283
12															
13															
14	Perpetuity Growth Rate-Based Valuation														
15	Total PV of Cash Flows					=SUM(G11:P11)	-15.9% of Enterprise Value								
16	Continuing Value					90,147.6									
17	PV of Continuing Value					52,339.2	115.9% of Enterprise Value								
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26															
27															
28															
29															
30															
31															
32															
33															
34															
35															

Calculating the sum of all discounted cash flows during the explicit forecast period

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Enterprise Value = Present value of cash flows + Present value of Continuing value

Perpetuity Growth Rate-Based Valuation		
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$$\text{Equity Value} = \text{Enterprise Value} + \text{Cash} - \text{Financial Liabilities}$$

Perpetuity Growth Rate-Based Valuation		
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Continuing Value	90,147.6	
PV of Continuing Value	52,339.2	115.9% of Enterprise Value
Enterprise Value	45,178.0	
+Cash	15,803.9	
-Financial liabilities	(22,930.9)	
Equity Value	=SUM(F18:F20)	
Number of shares outstanding (as of 14 Jan 2018)	168.1	
Price per share	226.4	

		WACC			
		5%	6%	7%	8%
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Divide Equity value by Total number of shares outstanding to obtain Price per share

Perpetuity Growth Rate-Based Valuation		
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Equity Value	38,051.0	
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Price per share	226.4	

Prepare a sensitivity analysis to see the company's valuation using different perpetuity growth and WACC figures

g

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